FORESTWIDE MAINTENANCE OF OPEN AND SEMI-OPEN LANDS, ROADSIDE CORRIDORS, AND UTILITY RIGHTS-OF-WAY

George Washington and Jefferson National Forests

BACKGROUND

The George Washington and Jefferson National Forests (GWJNFs) maintains about 14,000 acres of permanent grasslands and shrublands, including wildlife openings, old fields, pastures, hayfields, and openlands around scenic trails, recreation sites, administration sites, and community/utility reservoirs and other dam sites. About 59,000 acres of Forest Service maintained road corridors (10-50 feet each side) and 6,500 acres of gas and powerline utility rights-of-way (ROW) occur on both Forests. Although the management objectives for these areas vary, their maintenance responsibilities all require the control of encroaching, undesirable woody and other unwanted vegetation, including nonnative invasive plants. These areas are found in all management prescriptions on the GWJNFs, with the exception of congressionally designated Wilderness Areas.

Mowing, brushing, and the use of hand tools have historically been the primary control methods in these areas but the integrated use of herbicide in a maintenance regime can be more efficient and effective. Mowing and brushing keep the vegetation down but these methods do not kill the roots of many species, including trees. Over time the root system gets larger while maintaining the above ground vegetation. With each mowing or brushing, the woody vegetation is cut down but sprouting actually increases because of the larger root system that remains after cutting. Herbicide treatment is periodically needed to control this kind of woody vegetation. The application of herbicide is often a better means of control because it kills the entire plant including the root. This can lead to fewer treatments and reduced maintenance costs over the long-term.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to meet the management needs of maintaining conditions in existing permanent open and semi-open lands, roadside corridors and utility rights-of-way by integrating the use of chemical methods with manual, mechanical, and cultural methods in a more efficient manner. The proposed action includes a checklist requiring specialist reviews and Responsible Official approval that would be implemented on a site-specific basis when herbicide would be used. This would reduce the need to do individual environmental assessments (EA) for each project.

The Chief of the U.S. Forest Service (USFS) has identified conserving open space, restoring and sustaining forests and grasslands, providing benefits to the American people, and sustaining outdoor recreation opportunities as top Goals of the Forest Service (USFS Strategic Plan 2015). Objectives associated with the Chief's Goals include restoring diverse habitats (Objectives A and C), helping meet energy resource needs (Objective E), and improving the quality and availability

of outdoor recreation experiences (Objective F). Strategies associated with these objectives include implementing environmental management systems on openlands, effectively managing and maintaining the infrastructure to support products, services, and uses of National Forest System (NFS) lands, and safely managing of road systems for recreational access.

Open and Semi-Open Areas. A number of high priority species occurring on the George Washington and Jefferson National Forests require grassland/shrubland habitat for some or all of their life history needs and are a desired condition found in both the George Washington and Jefferson National Forest Revised Land and Resource Management Plans (USDA Forest Service 2004, 2014). In the Mount Rogers National Recreation Area, open pastoral scenic areas are a desired condition (USDA 2004). Areas along the Appalachian National Scenic Trail jointly managed by the Appalachian Trail Commission (ATC) and Forest Service contain grassland/shrubland and pastoral areas that are a desired condition for the ATC and hikers who use the Trail System (USDA 2004, 2014). Numerous recreation areas and administrative sites on the Forests have areas of open and semi-open grasslands for recreational use, safety and visual corridors. Periodic maintenance of openlands is required to keep these areas in an open condition, with typical management treatment occurring every 2 to 8 years. Manual or mechanical treatments of these areas would typically be done a more frequent basis than chemical treatments.

Road Corridors. Forest Service road systems are used for public recreational access and to implement the various programs authorized by the National Forest Revised Land and Resource Management Plans. It is important to manage vegetation immediately adjacent to open roads for driver safety. Tall woody vegetation growing in the road right-of-way can create visibility and safety problems for motorists utilizing these roads (USDA 2004, 2014). A road completely shaded with woody vegetation does not allow for sunshine to help keep the road free from ice and water, which in turn affects safety and increases road maintenance needs. Roadside maintenance is typically needed on a 3 to 5 year cycle per road.

Utility Rights-of-Way. These corridors need to be periodically managed to provide for safety and reliability of the utility. Woody vegetation needs to be periodically managed to prevent interference with overhead lines and/or underground pipelines or cables that can cause power outages or forest fires, (USDA 2004, 2014). Utility corridors managed with grasses, forbs and shrubs can provide benefits for wildlife as well. Most utility rights-of-way are managed by the utility owners under a special use permit. The permit owners are responsible for the maintenance of these corridors under conditions specified in the permit and most must receive written approval from the Forest Service for the use of herbicide. For power line rights-of-way, maintenance is typically done on an 8 to 10 year cycle to prevent trees and shrubs from growing into overhead conductors and power lines. Depending on the deflection characteristics of a power line, not all of a corridor may need treatment.

PROPOSED ACTION:

The proposed action is to manage vegetation to maintain open conditions in open and semi-open lands, roadside corridors utility rights-of-way through the use of manual, mechanical, cultural and chemical methods, either singly or in combination, to control woody and other unwanted

vegetation. Wherever possible, proposed treatments would be combined with treatments for nonnative invasive species (NNIS)(USDA 2010), as the following areas are identified in the Forest-Wide Non-Native Invasive Plant Control Environmental Assessment (USDA 2010) as priority treatment areas. Combining treatments will improve efficiency and reduce the number of total treatments in these areas.

- **Open and Semi-Open Lands:** 14,000 acres of permanent grasslands and shrublands, including wildlife openings, pastures, hayfields, and openlands around scenic trails, recreation and administration sites (including community/utility reservoirs and other dam sites), need to be periodically managed to maintain their open character and prevent unwanted vegetation encroachment, including native woody and NNIS species. An estimated 3,500 acres per year would be treated using a combination of manual, cultural, mechanical, or chemical treatments to control unwanted vegetation.
- **Roadside Corridors:** An estimated 59,000 acres of roadside corridor needs to be periodically maintained for driver safety. Approximately 870 miles of road per year, for a total treatment area of about 2,600 acres (about 10 to 50 feet on either side of the road) would be treated using a combination of manual, cultural, mechanical, or chemical treatments. The treatment area would be the open corridor within the road right-of-way, which is normally 10 to 50 feet on either side of the road surface and includes the road shoulders and the roadside area from the top of the cut bank to the toe of the fill slope.
- **Utility Rights-of-Way:** The 6,500 acres of existing gas and powerline utility corridors need to be periodically managed to provide for safety and reliability of the utility. An estimated 1,000 acres per year would be treated using a combination of manual, cultural and chemical methods, to control woody and other unwanted vegetation encroachment on power lines or gas lines. Special use permittees would be required to submit a pesticide use proposal (PUP) for herbicide use within utility corridors and receive written approval from the Forest Service before implementation. The PUP requirements will be clearly listed in the permit.

The Responsible Official will review and approve all herbicide use requests using the implementation checklist (Appendix A). Utilizing this checklist, a site-specific review will be conducted and approved by the Responsible Official at each site proposed for herbicide treatment prior to implementation.

The treatments are expected to begin in 2016 and continue for 10 years, with a comprehensive review at the 5 year interval. Treatments will be subject to available funding and resources each year.

Methods of Treatment

Proposed Manual Methods (pulling, grubbing, cutting, and digging): Manual methods would be used for controlling small spots of unwanted vegetation, typically less than 0.10 acres, when the method is effective and efficient. Manual methods may be used in conjunction with herbicide application in some locations. Examples of manual methods include, but are not limited to: shovels, saws, axes, loppers, hoes, weed-wrenches, string trimmers, chain saws, and brush saws.

Proposed Mechanical Methods (mowing, haying, tree/brush shearing, uprooting, seeding, disking, and plowing): Mechanical methods would employ the use of tractors or other heavy equipment such as dozers and backhoes. Other equipment could include mowers, bush hogs, and forestry brush cutters/mulchers. Normally, this method would be applied to larger open areas suitable for equipment access. Mowing or shearing may be used in conjunction with herbicide application. Plowing or disking on appropriate sites would be used to help establish desirable vegetation before unwanted vegetation invades an area.

Proposed Cultural Methods (controlled fire): Cultural methods include the use of prescribed fire, where appropriate, in permanent grasslands, shrublands, or hayfields. Prescribed fire would be used in accordance with approved burn plans.

Proposed Chemical Methods (herbicide): The objectives of herbicide use would be to control unwanted vegetation where manual, mechanical or cultural means alone would be ineffective, cost-prohibitive or result in excessive soil disturbance or other resource damage. All herbicides to be used are approved by the U.S. Environmental Protection Agency (EPA) and would be used according to manufacturer's label direction for rates, concentrations, exposure times, and application methods. Applications would be done under the supervision of a certified applicator. Herbicides would be directly applied to the target plants. Techniques that could be used include:

- Direct foliar applications using hand-held systems, backpack sprayers, hand-held brushes
- Basal bark and stem treatments using spraying or painting (wiping) methods
- Cut surface treatments (spraying or wiping),
- Stem injections
- Broadcast spraying with a boom sprayer attached to a vehicle.

No herbicides would be applied aerially.

Proposed Herbicides

The choice of herbicide and application method will be guided by the target species, the size of the plants to be controlled and the vicinity of the area. Specific herbicides that could be used in the project area are listed below. Detailed descriptions of these chemicals, including comprehensive risk assessments for each, can be found at:

http://www.fs.fed.us/foresthealth/pesticide/risk.shtml

http://www.fs.fed.us/foresthealth/pesticide/pdfs/052-25-03aTriclopyr.pdf (Triclopyr)

https://www.regulations.gov/document?D=EPA-HQ-OPP-2012-0717-0013 (Fosamine Ammonium)

Clopyralid is a selective herbicide that controls broadleaf herbs, primarily composites and legumes. This chemical acts as a growth regulator and is typically applied as a direct foliar

application. With selectivity to legumes, this chemical is particularly useful in the control of black locust. Commercial brand-names include, but are not limited to Transline™.

Dicamba is a somewhat selective herbicide that controls most annual and perennial broadleaf herbs and some woody species. This chemical acts as a growth regulator and is typically applied as a direct foliar application. Commercial brand-names include, but are not limited to Vanquish™ and Overdrive™.

Glyphosate is a non-selective, broad spectrum herbicide that can be used to control many grasses, forbs, vines, shrubs, and tree species. This chemical is a growth inhibitor that can be applied through direct foliar application, stem injection, and cut-surface application. Commercial brand-names include, but are not limited to Accord™, Roundup™, and Rodeo™.

Hexazinone is a photosynthetic inhibitor selective to most hardwood tree species, shrubs and some grasses. Commercial brand-names include, but are not limited to Velpar™ and Pronone™.

Imazapic is a growth regulator used primarily in and around populations of nativewarm season grasses. Warm season grasses, many wildflower species, and legumes are resistant, while many cool season grasses and broadleaf weeds are susceptible. Commercial brand-names include, but are not limited to Plateau™.

Imazapyr is a selective herbicide that is used primarily in the control of hardwood trees and some species of grasses. This chemical is a plant protein production inhibitor that can be absorbed either through roots or foliage, or injected directly into the stem, and works systemically throughout the target plant. Use in combination with Triclopyr or Glyphosate can increase target specificity. Commercial brand-names include, but are not limited to Arsenal™ and Chopper™.

Metsulfuron methyl is a systemic growth regulator that is selective to woody species, broadleaf weed species, and many annual grasses. Commercial brand-names include, but are not limited to Escort™.

Triclopyr is a selective herbicide that controls many species of herbaceous and woody broadleaf weeds, but has little to no effect on grasses. This chemical acts as a growth regulator and can be applied as a direct foliar application, stem injection, or cut-surface treatments. Commercial brand-names include, but are not limited to Garlon 3A™, Garlon 4™, and Pathfinder II™.

Fluazifop-P-Butyl is a monocot specific post-emergent growth regulator primarily affecting grasses, sedges, and lilies. Commercial brand-names include, but are not limited to Fusilade ™.

Fosamine ammonium is a brush control agent that is diluted with water and applied as a foliar spray. It controls many woody species by inhibiting bud growth and treated plants will not leaf out or grow the season after treatment. Commercial brand-names include, but are not limited to Krenite)™.

Adjuvants and Dyes: An adjuvant is any compound that is added to an herbicide formulation or tank mix to facilitate the mixing, application, concentration, or effectiveness of that herbicide. Adjuvants are already included in the formulations of some herbicides available for sale (e.g. RoundUp®), or they may be purchased separately and added into a tank mix prior to use. Adjuvants are chemically and biologically active compounds, and they may improve the effectiveness of the herbicide they are added to, either increasing its desired impact and/or decreasing the total amount of formulation needed to achieve the desired impact. Some herbicides require the addition of an adjuvant to be effective. Dyes (such as Turfmark™) are mixed with the herbicide and stain the area where the herbicide is applied, allowing the applicator to see treated areas. This results in more accurate treatment and reduces potential for using more herbicide than is necessary. There is no universal adjuvant that can improve the performance for all herbicides against all weeds or under all environmental conditions. The herbicide and adjuvant selected and the relative amounts used must be tailored to the specific conditions of each application. The primary herbicide adjuvants being considered are:

- **Vegetable oil carrier group** (derived from plants) or **mineral oil carrier group** (derived from petroleum products) – non-ionic surfactants (such as JBL Oil Plus™ or JBL Oil Improved Plus™) that reduce surface tension and improve spreading, sticking and herbicide uptake.
- **Limonene spreader group** – non-ionic surfactants (such as Cide-Kick™ or Organic-Kick™) which are wetting agents, activators, and penetrants all in one and are byproducts of the citrus industry.

The EPA regulates the inclusion of certain ingredients in adjuvant formulations, but it does not stringently test and regulate the manufacture and use of adjuvant products (as they do for herbicides and other pesticides). As such, there is little information on the effects of these different adjuvants, other than that provided by the manufacturer. An herbicide label may specify what types of adjuvant are appropriate or advisable to use with that herbicide, but it will not suggest specific brands. Therefore, there is no good single resource or system to determine which specific adjuvant product (if any) to use for each application situation (Tu et al. 2001).

Methods of Herbicide Application

Herbicides would be applied on the ground utilizing a method that minimizes the risk to human and wildlife health and the environment. There will be no aerial (helicopter or airplane) application of herbicides with this proposed action. Those staff mixing, handling, storing, transporting and land applying herbicides will be properly trained as authorized by the Responsible Official. The methods being considered for use include:

Direct Foliar Spray – Herbicide would be directly applied to the foliage of the target unwanted vegetation.

Cut Stump Spray – Target woody vegetation would be cut low to the ground and the stump would be treated with herbicide.

Frill Treatment (or Hack and Squirt) – Small cuts would be made into the standing stem of the target woody vegetation and herbicide would be applied into the cuts.

Basal Treatment – Herbicide would be applied to the standing stem of the target unwanted vegetation near the base and extend up generally 12 to 18 inches in height.

DESIGN CRITERIA (from the George Washington (GWNF) and Jefferson (JNF) Forest Plans):

Any action taken will be consistent with the respective Forest Plan, the decision document, and will comply with applicable laws and regulations such as the Endangered Species Act and the Archaeological Resources Protection Act, and herbicide labeling.

Standards for Herbicide Use:

- Method and timing of application are chosen to achieve project objectives while minimizing effects on non-targeted vegetation and other environmental elements. Selective treatment is preferred over broadcast treatment (JNF Plan standard FW-94, GWNF Plan standard FW-106).
- No class B, C, or D chemicals may be used without approval of the Regional Forester. (JNF Plan standard FW-95, none are proposed here)
- Vegetable oil is used as the herbicide carrier when available and compatible with the proposed application (JNF Plan standard FW-95).
- When applying herbicide, protect non-target vegetation, especially threatened, endangered, proposed, or sensitive plants by employing a physical barrier between them and the area being treated. The physical barrier must be sufficient to protect the non-target vegetation from herbicide drift and flow (JNF Plan standard FW-102, Plan Amendment #2, 2010, GWNF Plan standard FW-113).
- No herbicide will be ground-applied within 30 horizontal feet of lakes, wetlands, and perennial or intermittent springs and streams. No herbicide will be applied within 100 horizontal feet of any public or domestic water source. Selective treatments (which require added site-specific analysis and use of aquatic–labeled pesticides) may occur within these buffers only to prevent significant environmental damage such as nonnative invasive plant infestations (JNF Plan standard FW-100, GWNF Plan standard FW-111).
- With the exception of utility corridor and road rights-of-way, no herbicide is broadcast within 100 feet of a private land and 300 feet of a private residence, unless there is private owner permission (JNF Plan standard FW-101, GWNF Plan standard FW-112).
- Aquifers and public water sources are identified and protected (JNF Plan standard FW-103, GWNF Plan standard FW-114).
- Application equipment, empty herbicide containers, clothes worn during treatment, and skin are not cleaned in open water or wells. Mixing and cleaning water must come from a public water supply and be transported in separate labeled containers (JNF Plan standard FW-104, GWNF Plan standard FW-115).

- Herbicide mixing, loading, or cleaning areas in the field are not located within 200 feet of private land, riparian corridors, open water or wells, or other sensitive areas (JNF Plan standard FW-105, GWNF Plan standard FW-116).
- No herbicide will be broadcast on rock outcrops or sinkholes. No soil-active herbicide with a half-life longer than 3 months will be broadcast on slopes over 45 percent, erodible soils, or aquifer recharge zones. Such areas will be clearly marked before treatment so applicators can easily see and avoid them (JNF Plan standard FW-106, GWNF Plan standard FW-117).
- Nozzles that produce large droplets (mean droplet size of 50 microns or larger) or streams of herbicide are used. Nozzles that produce fine droplets are used only for hand treatment where distance from nozzle to target does not exceed 8 feet (JNF Plan standard FW-108, GWNF Plan standard FW-119).
- Herbicides are applied at the lowest rate effective in meeting project objectives and according to guidelines for protecting human and wildlife health. Application rate and work time must not exceed typical levels (GWNF Plan standard FW-120).
- Weather is monitored and the project is suspended if temperature, humidity, or wind becomes unfavorable as shown in Table 2-7 in the Jefferson Forest Plan or Table 4-1 in the George Washington Forest Plan (JNF Plan standard FW-107, GWNF Plan standard FW-118).
- Areas do not undergo prescribed burning for at least 30 days after herbicide treatment (JNF Plan standard FW-96, GW Plan Standard FW-107).

Standards for Visuals:

- Cut stems to within approximately 6 inches of the ground when doing roadside maintenance (JNF Plan standard FW-194, GWNF Plan standard FW-181, as interpreted for this specific decision).
- Accomplish mowing and bush hogging prior to roadside herbicide treatment in Very High and High Scenic Integrity Objective areas (JNF Plan standard GW-196) or as soon as practicable following plant mortality (GWNF Plan standard FW-192).
- Selectively remove trees to improve amenities within high use areas, vista points, and along interpretive trails (JNF Plan standard FW-199, GWNF Plan standard FW-194).

Standards for Road Maintenance:

- Apply the level of maintenance needed to protect the investment, facilitate resource management, and provide for use safety (JNF Plan standard FW-238, GWNF Plan standard FW-234).

Implementation of Proposed Action

The current proposal is to allow the integrated use of manual, mechanical, chemical, and cultural methods for the maintenance of open and semi-open lands, roadside corridors, utility rights-of-way, recreation sites, administrative sites, and other locations across the Forests as needed over the next ten years. Manual or mechanical treatments of these areas would typically be done on a more frequent basis than chemical treatments. Some areas may need an initial chemical treatment

of two times per year so that the herbicides can take control of the large root systems developed from historic mechanical treatments. Others will only require a single chemical treatment the first year. There will typically be no more than two chemical treatments per year on any site. Open and semi-open areas would typically require treatment every 2 to 8 years. Roadside corridors would typically require treatment every 3 to 5 years. Utility rights-of-way would typically require treatment every 8 to 10 years.

A pre-implementation review of each site would be required by appropriate resource specialists and approved by a Responsible Official whenever herbicide would be used. A site-specific Implementation Checklist of Required Reviews (Appendix A) would be used to ensure that potential environmental impacts are within the scope of the impacts disclosed in this NEPA document before a specific treatment would occur. Any site-specific mitigation measures not included in the design criteria as previously discussed would be added if needed. The use of any method of treatment or herbicide that is not addressed in this EA will require a new decision.

DECISIONS TO BE MADE

The Forest Supervisor of the George Washington and Jefferson National Forests is the Responsible Official for the decision to be made for the proposed actions. The decision-maker will answer the following questions based on the environmental analysis:

- Whether the proposed action would result in significant environmental effects that would require the preparation of an Environmental Impact Statement, or if there is a finding of no significant impact.
- If significant impacts are not anticipated, the Forest Supervisor will determine whether the proposed action will proceed as described above, as modified by an alternative, or not at all.
- Mitigation measures and monitoring requirements to be implemented by the Forest Service.

PUBLIC INVOLVEMENT

We welcome your involvement with this decision. If you have questions about this project please contact Jessie Howard at the Supervisors Office at (540) 265-5130.

The opportunity to comment ends 30 days following the date of publication of the legal notice in the *Roanoke Times*. Only those who submit timely and specific written comments in accordance with regulations at 36 CFR 218 regarding the proposed project during a public comment period established by the Responsible Official are eligible to file an objection §218.24(b)(6). For issues to be raised in objections, they must be based on previously submitted specific written comments regarding the proposed project or activity and attributed to the objector. The publication date of the legal notice in the newspaper of record is the exclusive means for calculating the time to submit written comments on a proposed project or activity. The time period for the opportunity to comment on a proposed project or activity to be documented with an environmental assessment shall not be extended. It is the responsibility of all individuals and organizations to ensure that their comments are received in a timely manner.
Please include the following information in your comments:

1) Your name and address

2) Title of the Proposed Action – "Maintenance of Open and Semi-open Lands, Roadside Corridors and Utility Rights-of-Way"
3) Specific comments on the proposed action, along with supporting reasons the Responsible Official should consider in reaching a decision
4) Your signature or other means of identification verification. For organizations, a signature or other means of identification verification must be provided for the individual authorized to represent your organization.

Comments must be postmarked or received within 30 days beginning the day after publication of this notice in *The Roanoke Times*. Oral or hand-delivered comments must be received within our normal business hours of 8:00 a.m. to 4:30 p.m. Comments may be faxed to 540-265-5145. Comments may be mailed electronically to our office, in a common digital format, to: comments-southern-georgewashington-jefferson@fs.fed.us. When sending electronic or fax comments, please note the name of the project in the subject line – "Maintenance of Open and Semi-Open Lands, Roadside Corridors and Utility Rights-of-Way". When sending comments through the postal system, please use the following address:

USDA Forest Service
Maintenance of Open and Semi-Open Lands, Roadside Corridors and Utility Rights-of-Way
5162 Valleypointe Parkway
Roanoke, VA 24019

Prior to a final decision for this proposal, we will prepare a final Environmental Assessment and draft Decision Notice prior to the objection period.

Thank you for your interest in the management of your George Washington and Jefferson National Forests.

Sincerely,

JOBY P. TIMM
Forest Supervisor

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Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 690-7442 or email at program.intake@usda.gov.

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REFERENCES

Tu, M. Hurd C., and J.M. Randall. 2001 Weed Control Methods Handbook: Tools & Techniques for Use in natural Areas. The Nature Conservancy. 220 pages.

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USDA Forest Service. 2007. Forest Health Protection Website: Herbicide Risk Assessments. http://www.fs.fed.us/foresthealth/pesticide/risk.shtml

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Appendix A

Implementation Checklist for the Use of Herbicide in Maintenance of Open, Semi-Open Areas, Roadside Corridors and Utility Corridors

Project Name:_____
Lat/Long in decimal degrees: N_____ W_____
GIS Acres:_____(calculated from GIS)
Percent of site treated with herbicide_____%
Data Collected by:_____

List of any nonnative invasive plant species present at site that will be treated:

Treatment method proposed: (list methods, chemicals used, date to be treated, by whom, etc.)

Botanist Review: (Describe any special circumstances including the presence of TES species and rare or unique communities. List all recommended mitigations below.)

Wildlife Biologist Review: (Describe any special circumstances including potential impacts to forage and wildlife investments. List all recommended mitigations below.)

Aquatic Biologist Review (Only required when treating sites within riparian areas):
(Describe any special circumstances including the presence of aquatic TES species. List all recommended mitigations below.)

Hydrologist/Soils Review: (Describe any special circumstances regarding potential impacts to water quality. List all recommended mitigations below.)

Recreation Specialist Review: (Describe any special circumstances regarding recreation activities in the area that may be affected. List all required mitigations below.)

Archaeologist Review (Only required if treatment involves ground disturbance)**:** (Describe any special circumstances regarding historical or cultural significance. List all recommended mitigations below.)

Signatures and Date:

_____	_____	_____
Botanist/Ecologist	Wildlife Biologist	Aquatic Biologist
_____	_____	_____
Hydrologist	Archaeologist	Recreation Specialist

Responsible Official Approval and Date:

_____